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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/003,389	10/30/2001	Scott C. Clouthier	10007418-1	5349

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EXAMINER	
DIVINE, LUCAS	
ART UNIT	PAPER NUMBER
2624	

DATE MAILED: 12/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/003,389	CLOUTHIER ET AL.	
	Examiner	Art Unit	
	Lucas Divine	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 September 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11,14,15,18,19 and 21-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11,14,15,18,19 and 21-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 September 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Claims 1 – 11, 14, 15, 18 – 19, and 21 – 26 are pending.

2. Drawings dated 9/19/05 are accepted.

Response to Arguments

3. Applicant's arguments filed 9/19/05 have been fully considered but they are not persuasive.

With respect to applicant's arguments that the new limitations are not meet by Lapstun.

In reply, Lapstun teaches a merging device (Fig. 18, 17 shows the step of the merging performed by printer 5) configured to combine decompressed K plane data (from 148 bi-level K buffer that is decompressed in 16), including a first plurality of data elements, and a K plane (halftone contone data from 15 includes black data), including a second plurality of data elements, by selecting a largest of corresponding ones of the first plurality of the data elements and the second plurality of the data elements to generate a third plurality of data elements (e.g. Figs. 37, 39, 40, 41, wherein at least at some points or all, the larger black value is chosen between the contone background and the bi-level foreground). As to the 'smaller, if greater than zero,' see the same figures, specifically 40, which selects the contone data over the full black parts of the A, thus selecting the lower values.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1 – 11, 14, 15, 18 – 19, and 21 – 26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Regarding claim 1, the claimed K plane and K plane data are not clear as to what is being claimed. These are read in light of the specification, because in general, K (black) planes all have some data, so the applicant must be his own lexicographer in this case to differentiate the two. But the specification is unclear and thus makes the claim unclear. On page 6 of specification, middle of paragraph 14, it states 'The K plane includes compressed data corresponding to a separate black color plane provided by computer 100 along with the compressed RGB data'. Then the first line of paragraph 15 states 'The K plane data is delivered by computer 100 in compressed form.' Thus, it appears that they are the same thing in this description. Then, on page 8 in paragraph 17, the K plane is described as generated by the color space conversion unit. Thus, it is unclear as to what is the K plane and the K plane data in the specification and clarifications must be clear and definite because in this case, the specification determines what the applicant is claiming. Further, the comma and punctuation of claim 1 lead to some ambiguity. Is the K plane made by the selecting? What is the 'by selecting' referring to? If the claim is supposed to read more like claim 26 that the combining is done by selecting, the claim should read more like claim 26 in punctuation and wording. Further, the claim reads that the first and second types of data both have ones, and the merging device is supposed to select the largest of the two 1's? This language is unclear and confusing. How do you select a larger one (1)? Clearer claim language is required to make the claim definite. Further, the claim reads that the largest corresponding ones of the first data is

combined with the second data. What is the largest corresponding ones of the first data and what does it correspond to? These questions all arise from a reading of the claim and thus the claim does not particularly point out or distinctly claim what the applicant regards as their invention. Claims 15, 18, 21, and 26 have the same indefiniteness (except the by selecting for 26). The dependent claims are thus rejected based on their inheritance of rejected limitations from the parent claims.

Examiner interpretations for art rejections: Examiner interprets the claim to generally mean that two types of information including black information is fed into a merging device to merge the types of data and the largest type of data is selected. Similarly, the smallest for 'smallest' claims.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 15, 18, 19, and 21 are rejected under 35 U.S.C. 102(e) as being anticipated by Lapstun et al. (US 2004/0042046).

Regarding claim 1, Lapstun teaches **a merging device** (Fig. 18, 17 shows the step of the merging performed by printer 5) **configured to combine decompressed K plane data** (from 148 bi-level K buffer that is decompressed in 16)**, including a first plurality of data elements, and a K plane** (halftone contone data from 15 includes black data)**, including a second plurality of data elements, by selecting a largest of corresponding ones of the first plurality of the data elements and the second plurality of the data elements to generate a third plurality of data elements** (e.g. Figs. 37, 39, 40, 41, wherein at least at some points or all, the larger black value is chosen between the contone background and the bi-level foreground).

Regarding claim 15, arguments analogous to claim 1 apply to claim 15. As to the 'smaller, if greater than zero,' see the same figures, specifically 40, which selects the contone data over the full black parts of the A, thus selecting the lower values.

Regarding claims 18 and 21, the structural elements of claims 18 and 21 are perform the method steps of claim 18. Therefore claims 18 and 21 are rejected for the reasons set forth in the rejection of claim 1.

Regarding claim 19, which depends from claim 18, Lapstun teaches

storing compressed K plane data in the memory (buffer 146 holds compressed K plane data);

loading compressed K plane data into a decompressor from the memory and generating the decompressed K plane data from the compressed K plane data (decompression in item 16, e.g. Fig. 18); and

storing the decompressed K plane data in the memory (148 buffer storage, Fig. 18).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 2 – 5, 7 – 11, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lapstun as applied to claim 1 above, and further in view of Yoshino (US 6204933).

Regarding claim 2, which depends from claim 1, Lapstun teaches compression, decompression, CMYK merging with K, and buffers that save the data between operations (e.g. 146 – 149). Lapstun does not specifically teach the other specific layout elements of a printer (such as printer 5) that are recited in claim 2.

However, Yoshino teaches an apparatus (21A, Figs. 1 and 2), comprising: a memory to store compressed color data and decompressed color data (memory holds all printer image data; 7A in Figs. 1 and 2); a decompressor arranged to receive the compressed color data from the memory and configured to generate the decompressed color data (921A, Fig. 1); a color space converter arranged to receive the decompressed color data from the memory and configured to perform a color space conversion on the decompressed color data to form converted color space data (923A, Fig. 1); and a halftoning device arranged to receive the converted color space data and configured to perform a halftoning operation to generate halftone data (925A, Fig 1).

It would have been obvious to one of ordinary skill in the art that the elements in Yoshino are standard printing elements and are beneficial each for their respective operations. For example, the halftoner 141 of Lapstun could have easily been the same as the halftoning device

925A of Yoshino. Also, the memory to store in Yoshino could hold all the buffers that store in Lapstun. Both also teach decompressors, and Yoshino adds in the RGB-CMYK converter that is also standard to printers, but isn't specifically enumerated in Lapstun. The motivation for having standard printing parts is to be able to print high quality images that these parts allow to happen. Other motivations for having standard printing components in a printer are well known in the art.

Regarding claims 3 and 4 and 7 and 8, which depend from claim 2, Yoshino further teaches **the compressed color data includes compressed RGB color data and the converted color space data includes a C plane ,a M plane, a Y plane, and the K plane** (col. 5 lines 5-16).

Regarding claims 5 and 9, which depends from claim 4, Lapstun teaches **a JPEG decompressor** (143, Fig. 17), which is **lossy**.

Regarding claim 10, which depends from claim 2, Lapstun teaches a printer with memory, decompression, and halftoning including **a second decompressor arranged to receive compressed K plane data from the memory to generate decompressed K plane data** (Fig. 18 step 16 decompresses K plane data) and Yoshino teaches expanding the inputted data and storing all printer data in the memory. It would have been obvious to one of ordinary skill in the art to have a separate black decompressor in a printer. The motivation for doing so would have been to have high quality black text and line reproduction (paragraph 0055, 0057, 0065, 0110, wherein the black text and images are at a much higher resolution than the color data, which is needed because the human eye has a higher sensitivity to grayscale data [paragraph 0064]).

Regarding claims 11 and 14, which depends from claim 10, Lapstun further teaches **the first decompressor includes a lossy decompressor** (JPEG, paragraph 0160); **the second decompressor includes a lossless decompressor** (Group 4 facsimile, paragraph 0135). And Yoshino teaches **the color data includes RGB color data; the converted color space data includes a C plane, a M plane, a Y plane, and a K plane** (col. 5 lines 5-16).

7. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshino and Lapstun as applied to claims 1 – 5 above, and further in view of Lupien, J. et al. (US 6401143).

Regarding claim 6, which depends from claim 5, the combination does not specifically teach using DMAs to transfer data in a printer from functional units to memory.

Lupien teaches transferring data in a printer from function units to memory via a DMA (Fig. 2, dma controller 90 – Fig. 3 teaches controlling dma to direct data from the compressor/decompressors to the memory as well as from the image processing unit 70 to memory, which can include the color space converter of the other references, see also Fig. 5, cols. 6, 7 and throughout).

It would have been obvious to one of ordinary skill in the art to include direct memory access controllers in a printing system as shown in Lupien. The motivations for doing so would have been to have faster memory accesses and easier memory controlling as well as reducing processor operations by having the memory controlling be provided in a separate circuit.

8. Claims 22 – 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshino, Lapstun, and Shibuya et al. (US 6870638).

Regarding claim 22, Lapstun teaches **a merging device** (Fig. 18; 17 shows the step of the merging performed by printer 5) **configured to combine decompressed K plane data** (from 148 bi-level K buffer that is decompressed in 16), **including a first plurality of data elements, and a K plane** (halftone contone data from 15 includes black data), **including a second plurality of data elements, by selecting a largest of corresponding ones of the first plurality of the data elements and the second plurality of the data elements to generate a third plurality of data elements** (e.g. Figs. 37, 39, 40, 41, wherein at least at some points or all, the larger black value is chosen between the contone background and the bi-level foreground).

While, Lapstun teaches compression, decompression, CMYK merging with K, and buffers that save the data between operations (e.g. 146 – 149), Lapstun does not specifically teach the other specific layout elements of a printer (such as printer 5) that are recited in claim 2.

Yoshino teaches **an apparatus** (21A, Figs. 1 and 2), **comprising:**

a transition placement device coupled to the photoconductor exposure system and configured to provide the drive signal responsive to pulse codes (col. 12 lines 5-12 and Fig. 16, where pulse width values are output to the printer engine 10A for printing);

a memory to store compressed color data and decompressed color data (memory holds all printer image data; 7A in Figs. 1 and 2);

a decompressor arranged to receive the compressed color data from the memory and configured to generate the decompressed color data (921A, Fig. 1);

a color space converter arranged to receive the decompressed color data from the memory and configured to perform a color space conversion on the decompressed color data to form converted color space data (923A, Fig. 1); **and**

a halftoning device arranged to receive the converted color space data and configured to perform a halftoning operation to generate the pulse codes (925A, Fig 1; col. 5 lines 25-30).

It would have been obvious to one of ordinary skill in the art that the elements in Yoshino are standard printing elements and are beneficial each for their respective operations. For example, the halftoner 141 of Lapstun could have easily been the same as the halftoning device 925A of Yoshino. Also, the memory to store in Yoshino could hold all the buffers that store in Lapstun. Both also teach decompressors, and Yoshino adds in the RGB-CMYK converter that is also standard to printers, but isn't specifically enumerated in Lapstun. The motivation for having standard printing parts is to be able to print high quality images that these parts allow to happen. Other motivations for having standard printing components in a printer are well known in the art.

While Yoshino teaches a printer engine driven by pulse width modulation in a laser printer, the combination of Yoshino and Lapstun does not specifically teach **a photoconductor and a photoconductor exposure system configured to form a latent electrostatic image on the photoconductor according to a drive signal.**

Shibuya teaches a printing system by the same assignee as Yoshino that has the same type of halftone processing producing and pulse width modulation to a printer engine (Fig. 1) including **a photoconductor and a photoconductor exposure system configured to form a latent electrostatic image on the photoconductor according to a drive signal** (Fig. 12).

It would have been obvious to one of ordinary skill in the art that the printer engine of a laser printer such as that of Yoshino would have had an exposure system like that of Shibuya.

The motivation for having such a printer engine would have been to have a faster printer engine than that of ink jet or dot matrix printers.

Regarding claims 23 and 25, which depends from claim 22, while Yoshino teaches the **compressed color data includes compressed RGB color data** (col. 5 lines 5-16)

Lapstun teaches a **decompressor to be a lossy decompressor** (143, Fig. 17, wherein JPEG decompression is lossy).

Regarding claim 24, Lapstun further teaches **a lossless decompressor** (140, Fig. 17) **arranged to receive compressed K plane data from the memory and to generate the decompressed K plane data** (item 16 of Fig. 18).

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lucas Divine whose telephone number is 571-272-7432. The examiner can normally be reached on Monday - Friday, 7:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Moore can be reached on 571-272-7437. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Lucas Divine
Examiner
Art Unit 2624

ljd

KING Y. POON
PRIMARY EXAMINER